

THE CLAIMS ON FILE

1. (Previously presented) A process for preparing a polymer comprising (meth)acrylate salt units by a free-radical polymerization of a (meth)acrylate salt optionally with a second monomer in an aqueous medium, said method comprising polymerizing a supersaturated aqueous solution comprising the (meth)acrylate salt.
2. (Previously presented) The process of claim 1 wherein the supersaturated aqueous solution of the (meth)acrylate salt comprises 40 to 90 mol% of the (meth)acrylate salt and 10 to 60 mol% of a (meth)acrylic acid.
3. (Previously presented) The process of claim 1 wherein the supersaturated aqueous solution of the (meth)acrylate salt is prepared by first producing an overneutralized (meth)acrylate salt solution at a temperature of below 40°C and then continuously adding a (meth)acrylic acid and, prior to the complete precipitation of the resulting (meth)acrylate salt, the supersaturated salt solution is fed to a polymerization reactor and polymerized.
4. (Previously presented) The process of claim 3 wherein the polymerization reactor is a continuous kneading reactor, a spray polymerization reactor, or a continuous polymerization belt.
5. (Previously presented) The process of claim 2 wherein the (meth)acrylic acid comprises not more than 2000 ppm of dimers and less than 150 ppm of hydroquinone monomethyl ether.
6. (Previously presented) The process of claim 1 wherein the supersaturated aqueous solution further comprises 0.001 to 5 mol% of one or more monomers comprising two or more ethylenically unsaturated double bonds.
7. (Previously presented) The process of claim 1 wherein the supersaturated aqueous monomer solution is prepared using a solid anhydrous (meth)acrylate salt.

8. (Previously presented) The process of claim 1 wherein the supersaturated aqueous solution is prepared using a solid (meth)acrylate salt having a water content from 0.1% to 10% by weight.

9. (Previously presented) The process of claim 1 wherein the (meth)acrylate salt is used in the form of a supersaturated aqueous solution or dispersion obtained by neutralization of (meth)acrylic acid with aqueous hydroxide solution, a hydroxide, carbonate, or hydrogen carbonate.

10. (Previously presented) The process of claim 3 wherein the (meth)acrylate and the (meth)acrylic acid comprises acrylate and acrylic acid.

11. (Previously presented) The process of claim 1 wherein the (meth)acrylate salt comprises alkali metal (meth)acrylate.

12. (Previously presented) A polymer comprising (meth)acrylate units prepared by the process of claim 1.

13. (Previously presented) A method of preparing a polymer comprising dissolving a solid salt of a (meth)acrylate in water to form a supersaturated aqueous monomer solution and polymerizing the monomer solution in the presence of an optional second monomer.

14. (Previously presented) The process of claim 1 wherein the (meth)acrylate salt comprises sodium (meth)acrylate.

15. (Previously presented) The process of claim 1 wherein, at a given temperature, the supersaturated aqueous solution comprises more than 1.01 times the amount of the (meth)acrylic salt compared to a fully saturated solution of the (meth)acrylate salt at the same temperature.